ANALYTICAL RESULTS

Prepared by:

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Prepared for:

KEMRON Environmental Services
1359A Ellsworth Industrial Blv
Atlanta GA 30318

April 06, 2012

Project: Riverside Avenue

Submittal Date: 03/27/2012
Group Number: 1298061
SDG: RAK03
PO Number: SF1838-018
State of Sample Origin: NJ

Client Sample Description	Lancaster Labs #	Collected
Frac Tank 4-Bldg 7 Fluid-Sludge Composite Sample Riverside Avenue	6594087	03/27/2012 07:55

METHODOLOGY

The specified methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	KEMRON Environmental Services	Attn: Janelle Murphy
ELECTRONIC COPY TO	Data Package Group	

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

KEMRON Environmental Services
Project: Riverside Avenue
SDG: RAK03

Report Date: 4/6/2012 10:27
Submit Date: 3/27/2012 17:20

Analysis Name	Units	6594087 Frac Result		MRL**	EDL
2378-TCDD	pg/l	494		200	42.1
12378-PeCDD	pg/l	< 1,000		1,000	41.6
123478-HxCDD	pg/l	1,990	B	1,000	74.0
123678-HxCDD	pg/l	112,000		1,000	74.1
123789-HxCDD	pg/l	5,890	B	1,000	73.6
1234678-HpCDD	pg/l	7,560,000	EB	1,000	449
OCDD	pg/l	59,800,000	EB	2,000	393
2378-TCDF-Conf	pg/l	705	BCQ	200	97.9
12378-PeCDF	pg/l	< 1,000		1,000	26.6
23478-PeCDF	pg/l	< 1,000		1,000	23.1
123478-HxCDF	pg/l	4,860	B	1,000	45.6
123678-HxCDF	pg/l	1,320	B	1,000	45.5
123789-HxCDF	pg/l	< 1,000		1,000	47.3
234678-HxCDF	pg/l	5,510	B	1,000	45.7
1234678-HpCDF	pg/l	355,000	B	1,000	95.6
1234789-HpCDF	pg/l	31,900	B	1,000	109
OCDF	pg/l	2,430,000	B	2,000	75.9
Total TCDD	pg/l	9,750	QB	200	42.1
Total PeCDD	pg/l	10,200	QB	1,000	41.6
Total HxCDD	pg/l	222,000	QB	1,000	73.9
Total HpCDD	pg/l	10,700,000	EQB	1,000	449
Total PCDD	pg/l	70,700,000	EBQ		
Total TCDF	pg/l	13,000	QB	200	51.8
Total PeCDF	pg/l	8,190	QB	1,000	24.7
Total HxCDF	pg/l	207,000	QB	1,000	46.0
Total HpCDF	pg/l	1,830,000	QB	1,000	102
Total PCDF	pg/l	4,500,000	BQ		

** = This limit was used in the evaluation of the final result

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Total PCDD/PCDF	pg/l	75,200,000 EBQ	

** = This limit was used in the evaluation of the final result

CAT No.	Analysis Name	Method	Trial ID	Batch	Analysis Date/Time	Analyst	Dilution
6594087	**Frac Tank 4-Bldg 7 Fluid-Sludge Composite Sample**						
10915	Dioxins/Furans in Water - HRMS	SW-846 8290A	1	12090001	4/1/12 1146	Joseph D Anderson	1
11645	Dioxins/Furans in Water-Conf	SW-846 8290A	1	12090001	4/5/12 1755	Joseph D Anderson	1
10914	Dioxins/Furans in Water - SepF	SW-846 8290A	1	12090001	3/30/12 0900	Deborah M Zimmerman	1

Client Name: KEMRON Environmental Services Group Number: 1298061

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MRL**	Blank EDL	Report Units	OPR %REC	OPRD %REC	OPR/OPRD Limits	RPD	Max RPD
Batch number: 12090001		Sample number(s): 6594087							
2378-TCDD	< 200	200.	16.2	pg/l	90		67-158		
12378-PeCDD	< 1,000	1,000.	19.1	pg/l	93		70-142		
123478-HxCDD	< 1,000	1,000.	15.5	pg/l	92		70-164		
123678-HxCDD	< 1,000	1,000.	15.4	pg/l	91		76-134		
123789-HxCDD	< 1,000	1,000.	15.7	pg/l	99		64-162		
1234678-HpCDD	< 1,000	1,000.	17.5	pg/l	96		70-140		
OCDD	2,360	2,000.	13.6	pg/l	93		78-144		
2378-TCDF-Conf	< 200	200.	68.3	pg/l	92		75-158		
12378-PeCDF	< 1,000	1,000.	13.3	pg/l	99		80-134		
23478-PeCDF	< 1,000	1,000.	12.0	pg/l	95		68-160		
123478-HxCDF	< 1,000	1,000.	9.92	pg/l	94		72-134		
123678-HxCDF	< 1,000	1,000.	10.0	pg/l	98		84-130		
123789-HxCDF	< 1,000	1,000.	10.3	pg/l	93		78-130		
234678-HxCDF	< 1,000	1,000.	9.87	pg/l	94		70-156		
1234678-HpCDF	< 1,000	1,000.	8.24	pg/l	90		82-122		
1234789-HpCDF	< 1,000	1,000.	9.72	pg/l	94		78-138		
OCDF	< 2,000	2,000.	17.2	pg/l	94		63-170		
Total TCDD	< 200	200.	16.2	pg/l					
Total PeCDD	< 1,000	1,000.	19.1	pg/l					
Total HxCDD	< 1,000	1,000.	15.5	pg/l					
Total HpCDD	< 1,000	1,000.	17.5	pg/l					
Total PCDD	3,760			pg/l					
Total TCDF	288	200.	16.0	pg/l					
Total PeCDF	< 1,000	1,000.	12.6	pg/l					
Total HxCDF	< 1,000	1,000.	10.0	pg/l					
Total HpCDF	< 1,000	1,000.	8.93	pg/l					
Total PCDF	1,250			pg/l					
Total PCDD/PCDF	5,010			pg/l					

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max

* - Outside of specification
(1) The result for one or both determinations was less than five times the MRL.
(2) The unspiked result was more than four times the spike added.
** = This limit was used in the evaluation of the final result

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Dioxins/Furans in Water - HRMS
Batch number: 12090001

	13C12-2378-TCDD	13C12-23478-PeCDF	13C12-123478-HxCDF	13C12-123678-HxCDF
6594087	98	89	99	95
Blank	75	66	77	77
OPR	84	73	84	82
Limits:	25-164	21-178	26-152	26-123

	13C12-234678-HxCDF	13C12-123789-HxCDF	13C12-1234678-HpCDF	13C12-1234789-HpCDF
6594087	96	94	89	86
Blank	76	81	72	68
OPR	81	93	79	75
Limits:	28-136	29-147	28-143	26-138

	13C12-OCDF	13C12-12378-PeCDD	13C12-123478-HxCDD	13C12-123678-HxCDD
6594087	82	96	96	95
Blank	63	70	76	77
OPR	69	76	85	84
Limits:	17-157	25-181	32-141	28-130

	13C12-123789-HxCDD	13C12-1234678-HpCDD	13C12-OCDD	13C12-12378-PeCDF
6594087	95	94	90	90
Blank	76	71	64	67
OPR	83	78	71	75
Limits:	28-130	23-140	17-157	24-185

	13C12-2378-TCDF-Conf
6594087	103
Blank	72
OPR	74
Limits:	24-169

* - Outside of specification
(1) The result for one or both determinations was less than five times the MRL.
(2) The unspiked result was more than four times the spike added.
** = This limit was used in the evaluation of the final result

Dioxins/Furans Data Qualifiers

B	Detected in Method Blank
U	Undetected
J	Estimated concentration between Estimated Detection Limit and Minimum Level
E	Exceeds calibration range
C	Confirmed quantitation on secondary GC column
Q	EMPC - Estimated Maximum Possible Concentration
F	Interference is present
S	Saturation of detection signal

QC Comment

#VALUE!

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

6594087 Frac Tank 4-Bldg 7 Fluid-Sludge Composite Sample

10915 Dioxins/Furans in Water - HRMS
Reporting limits were raised due to interference from the sample matrix.

10915 Dioxins/Furans in Water - HRMS
Reporting limits were raised due to interference from the sample matrix.

State of New Jersey Lab Certification No. PA011

eurofins | Lancaster Laboratories

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		**Inorganic Qualifiers**	
A	TIC is a possible aldol-condensation product	**B**	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	**E**	Estimated due to interference
C	Pesticide result confirmed by GC/MS	**M**	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	**N**	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	**S**	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	**U**	Compound was not detected
P	Concentration difference between primary and confirmation columns >25%	**W**	Post digestion spike out of control limits
U	Compound was not detected	*****	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	**+**	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.